

Applicant: Loher et al.
Application No.: 08/849,746

Corrected Section

Of

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IN THE CLAIMS

1. (currently amended) A process for manufacturing medical components made of fiber-reinforced thermoplastic materials, where a blank formed of fibers and thermoplastic materials is first pre-finished, and said blank is brought into a final form of a component in a negative mold, under pressure, in a hot-forming process, comprising the steps of:

heating the entire blank to a forming temperature with plastic flow consistency in a heating stage located outside the negative mold,

pressing said heated blank into the negative mold, and

shaping the blank in the negative mold by virtue of the entire blank flowing from the heating stage into and filling up the negative mold.

2. (currently amended) A process for manufacturing medical components which are under stress, made of fiber-reinforced thermoplastic materials, where a blank formed with a fiber proportion of more than 50 volume-% and with at least predominant use of endless fibers and said fiber-reinforced thermoplastic material

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is first pre-finished, and said blank is brought into a final form of a component in a negative mold, under pressure, in a hot-forming process, comprising the steps of:

heating the entire blank to a forming temperature with plastic flow consistency in a heating stage located outside the negative mold,

pressing said heated blank into the negative mold, and

shaping the blank in the negative mold by virtue of the entire blank flowing from the heating stage into and filling up the negative mold.

3. (previously presented) The process according to Claim 1, wherein the blank is further pre-finished as rod material and is cut to a plurality of lengths required for a final component before the hot-forming process.

4. (previously presented) The process according to Claim 1, further comprising fibers that are endless and have a length that corresponds at least to a length of the blank for a final component.

5. (previously presented) The process according to Claim 1, wherein said blank is composed of layers with different fiber orientation in a lengthwise direction.

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6. (previously presented) The process according to Claim 1, wherein the blank is formed from more than one polymer laminate.

7. (previously presented) The process according to Claim 1, wherein the shaping of the blank is accomplished by a push-pull extrusion process.

8. (previously presented) The process according to Claim 1, further comprising the step of:

heating the blank to a forming temperature of 350-450 °C, and then after pressing said blank into the negative mold and shaping thereby,

cooling said shaped blank below the glass transition temperature of the thermoplastic material in a post-pressure phase.

9. (previously presented) The process according to Claim 1, further comprising the step of using carbon or graphite as a release agent for releasing the shaped blank from the negative mold.

10. (previously presented) The process according to Claim 1, wherein the blank is made of PAEK (polyaryl ether ketones) reinforced with carbon fibers.

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11. (previously presented) The process according to Claim 1, wherein said blank is formed from endless fibers and at least part of the endless fibers run parallel to an axis of the blank.

12. (previously presented) The process according to Claim 1, wherein at least a portion of the fibers has an orientation from 0 to 90° in the blank.

13. (previously presented) The process according to Claim 1, wherein the fibers have a length of more than 3 mm.

14. (previously presented) The process according to Claim 1, wherein the fibers are surrounded by said thermoplastic material, covering a surface of the blank during said shaping of said blank.

15. (currently amended) The process according to Claim 1, wherein the pressing step is made using a pressing head that travels at a speed of is 2mm/sec to 8 mm/sec a pressing temperature and a pressing speed are adjusted as a variable to change position and alignment of the fibers in a finished component.

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16. (previously presented) The process according to Claim 1, wherein the components receive an additional surface seal during the hot-forming process.

17-26. (cancelled)

27. (currently amended) The process according to Claim 7, wherein the reciprocating process is performed several times more than one time.

28. (New) The process of claim 1, wherein the blank is rod-shaped.

29. (New) The process of claim 28, wherein the rod-shaped blank is circular in cross-section.

30. (New) The process of claim 2, wherein the blank is rod-shaped.

31. (New) The process of claim 30, wherein the rod-shaped blank is circular in cross-section.